



03-22-05

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Lanny R. Lee
1358 Hooper Ave. Ste 324
Toms River NJ 08753
410-916-2864
eritina@earthlink.net

Oct 21, 2004

Attn: Mr. Thomas Williams
United States Patent and Trademarks office
P.O. Box 1450
Alexandria VA 22313-1450
Re: 10/668,742

Dear Mr. Williams,

Thank you for your help over the phone and fax sent.

Modern machining and grinding of components require very high tolerances over parts in production environments as a daily fact of life. When I was young we all dreaded even occasional tasks that are routine. Further complicating things much of these surfaces must be scratch free.

Enter the expandable tools that swell to fill the gap between the tool and the bore of the part because the part cannot be forced into the bores as scratches are likely. Patent 4,366,735 and the others fill the gap but do not do the whole job of holding the part stiffly. When radial, or lateral load, is exerted on the part as in grinding or cutting the part is pushed away from the load to flatten the bulge of an expansion mandrel by squishing the fluid to the far side and extend the bulge it further out to the side with less load. When this happens the tool and the work piece's center and the tool axis's are no longer co-linear. Usually this problem is alleviated by spinning the part or the tool at high speeds and taking small cuts. Lateral stiffness is also essential when machinist turn parts having eccentric weights. If there is too much force caused by the cutting tool or wheel the torque will pull the copper bond or braze loose. Or too much gap between the tool and the bore as the sleeve is easily blown out also ruining the tool.

The prior art teaches us of a connection of the sleeve that is maintained by a press fit or brazings which is only a surface bonding. When machining some parts radial pressure is dealt with when poured bismuth (which expands when it is allowed to cool) is used to hold parts on tools.

My invention solves: lateral stiffness, torque and blow out protection.

1. A high degree of lateral stiffness is obtained when these independent chambers are arrayed radially and longitudinal stiffness is achieved when these chambers are arrayed longitudinally. As it is shown in the drawings, all of the expansion chambers have their own pressure channel.
2. The expansion sleeve is fused to the body of the tool which will make it resistant to being twisted or blown out by large expansion modes. The parts of this are fused together.
3. The connection of the flexible wall welded to the extended lip of the groove which and the fillister groove along the weld reduces the stress and permits safe extension cycles.

Furthermore, my invention is a provides for a part that includes one or more independent expansion chambers which are enclosed in the parent material and well contoured to avoid highly stressed areas.

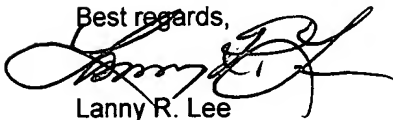
This is an honest effort to answer the oppositions and make corrections as required by your office actions.

1. I am not sure that I understand the meaning of "election was with traverse".
2. The drawing is fixed as directed. There is some problem with my records version of the drawing. There was no "178" shown.
3. Claim 5 is removed as required. No required drawing change needed.
4. Claim 5 is removed as suggested.

Specification

5. Page 3 lines 6-7 the reads as 8b. This is an error is on drawing sheet 2 where fig 7b should have been labeled 8b. The drawing is corrected and noted as in item 3.
Page 5 line 29 reference character "168" is changed to "158" as directed.
Page 6 line 14 reference character "170" is changed to "180" as directed.
6. Claims 24 and 25 changed. Claim 11 and 12 changed as directed.
7. The claim will be re-written to point out the invention.
8. Claim is re-written.
9. This objection is corrected in the re-write.
10. This objection is corrected in the re-write.
11. This objection is corrected in the re-write.
12. This not being considered at this time.
13. Hopefully the above letter will clear this
14. Hopefully the above letter will clear this
15. Filister is defined in David Pressman's book under voids: fillister (groove). Should I work around with another word? Also, the above letter pointing to the differences should clear show the differences of patent US 4,840,323. Furthermore the main body is a plenum with the chamber parts pressed to the ports.
16. Claim is omitted.
17. Claim is omitted.
18. Thank you.

Best regards,



Lanny R. Lee



Office Action Summary

Application No.

10/668,742

Applicant(s)

LEE, LANNY R.

Examiner

Thomas J. Williams

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 13-24 and 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.